## Claims:

1	1.	An ar	pparatus for determining a physical parameter
2		affe	cting an optical sensor, said apparatus comprising:
3		a)	a source for emitting a radiation having a narrow
4			linewidth at an emission wavelength $\lambda_{\mathrm{e}};$
5		b)	a means for varying said emission wavelength $\lambda_{\text{e}}$ ;
6		c)	an optical path for guiding said radiation to said
7			optical sensor and guiding a response radiation
8			from said optical sensor;
9		d)	a detector for generating a response signal to said
10			response radiation; and
11		e)	an analysis module for fitting said response signal
12			and determining therefrom said physical parameter.
13			
1		2.	The apparatus of claim 1, wherein said source is a
2			narrow linewidth laser.
3			
1			3. The apparatus of claim 2, wherein said narrow
2		·	linewidth laser is a tunable laser selected
3			from the group consisting of External Cavity
4 .			Diode lasers, Distributed Bragg Reflector
5			lasers, fiber lasers.
6		•	
1		4.	The apparatus of claim 1, wherein said analysis
2			module comprises a curve fitting module for fitting
3			a best fit curve to said response signal.
4			

1 5. The apparatus of claim 1, wherein said optical 2 sensor is selected from the group consisting of 3 Bragg Gratings and Fabry-Perot elements. 4 6. 1 The apparatus of claim 5, wherein said optical 2 path comprises an optical fiber and said Bragg 3 Grating is a Fiber Bragg Grating. 7. The apparatus of claim 1, wherein said means for 1 varying said emission wavelength  $\lambda_{\rm e}$  comprise a 3 laser tuner. 4 8. The apparatus of claim 7, wherein said laser 1 2 tuner comprises a scanner for scanning said 3 emission wavelength  $\lambda_e$ . 4 9. 1 The apparatus of claim 7, wherein said laser 2 tuner comprises a sweeper for sweeping said 3 emission wavelength  $\lambda_e$ . 4 10. The apparatus of claim 1, wherein said optical path 1 comprises a waveguide. 2 3 11. The apparatus of claim 1, further comprising a tap 1 2 for tapping said radiation and a wavelength meter 3 for monitoring said emission wavelength  $\lambda_e$ . 4

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an optical sensor, said method comprising:

A method for determining a physical parameter affecting

3	a)	emitting a radiation having a harrow linewidth at
4		an emission wavelength $\lambda_{\mathrm{e}};$
5	b)	providing an optical path for said radiation to
6		said optical sensor and for a response radiation
7		from said optical sensor;
8	c)	varying said emission wavelength $\lambda_{\mathrm{e}}$ ;
9	d)	generating a response signal from said response
10		radiation; and
11	e)	determining said physical parameter from a fitting
12		of said response signal.
13		
1	13.	The method of claim 12, wherein said optical sensor
2		produces said response radiation by a varying a
3		property of said radiation, said property being
4		selected from the group consisting of
5		transmittance, reflectance, absorbance and
6		polarization.
7		
1	14.	The method of claim 12, wherein said emission
2		wavelength $\lambda_{e}$ is varied continuously.
3		
1		15. The method of claim 14, wherein said emission
2		wavelength $\lambda_{\text{e}}$ is swept.
3		
1	16.	The method of claim 12, wherein said emission
2		wavelength $\lambda_{e}$ is varied discontinuously.
3		•
1		17. The method of claim 16, wherein said emission
2		wavelength $\lambda_{\circ}$ is scanned.

3		
1	18.	The method of claim 12, wherein said fitting
2		comprises a best curve fit of said response signal.
3		
1		19. The method of claim 18, wherein said fitting
2		further comprises an analysis method selected
3		from the group consisting of peak detection,
4		Full Width Half Maximum (FWHM) determination,
5		centroid detection.
6		
1		20. The method of claim 18, wherein said fitting
2		comprises a fit selected from the group
3		consisting of a polynomial fit, a Lorentzian
4		fit and a Gaussian fit.
5		
1	21.	The method of claim 12, wherein said physical
2		parameter is selected from the group consisting of
3		temperature, strain and pressure.
4		
1	22.	The method of claim 12, further comprising tapping
2		said radiation and monitoring said emission
3		wavelength $\lambda_{\rm e}$ .